

**Analysis Report**

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**ANALYTICAL RESULTS**

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425

Prepared for:

Olin Corporation  
Suite 200  
3855 North Ocoee Street  
Cleveland TN 37312

July 06, 2012

Project: Olin Wilmington, MA / 6107120016

Submittal Date: 06/19/2012

Group Number: 1316839

SDG: OLN77

PO Number: REWI0012

Release Number: ERRE9813

State of Sample Origin: MA

Client Sample Description

OC-SW-EDSD/SW7-XXX Grab Water

Lancaster Labs (LLI) #

6693008

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

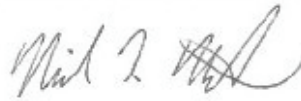
ELECTRONIC COPY TO AMEC  
ELECTRONIC COPY TO AMEC  
ELECTRONIC COPY TO Olin Chemicals  
1 COPY TO Data Package Group

Attn: Kelly Chatterton

Attn: Chris Ricardi

Attn: James Cashwell

Respectfully Submitted,



Nicole L. Maljovec  
Senior Specialist Group Leader

(717) 556-7259

**Sample Description:** OC-SW-EDSD/SW7-XXX Grab Water  
Wilmington MA Superfund Site

**LLI Sample #** WW 6693008  
**LLI Group #** 1316839  
**Account #** 12670

**Project Name:** Olin Wilmington, MA / 6107120016

**Collected:** 06/18/2012 11:10

Olin Corporation

**Submitted:** 06/19/2012 09:30

Suite 200

**Reported:** 07/06/2012 12:52

3855 North Ocoee Street

Cleveland TN 37312

**SWEDS** SDG#: OLN77-01\*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>HPLC Organics</b>		<b>SW-846 8000B</b>	ug/l	ug/l	ug/l	
02727	Kempore in Water	123-77-3	N.D.	1,000	230	1
02726	Opex in Water	101-25-7	N.D.	100	100	1
The holding time was not met. The client was notified and the data reported.						
Opex was not detected in the MDL verification standard. Therefore, the reporting limit is raised to account for the change in instrument sensitivity.						

## General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

## Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02727	Kempore in Water	SW-846 8000B	1	121720024A	06/21/2012 15:28	Michele D Hamilton	1
02726	Opex in Water	SW-846 8000B	1	121740029A	06/27/2012 12:20	James H Place	1

\*=This limit was used in the evaluation of the final result

## Quality Control Summary

Client Name: Olin Corporation  
Reported: 07/06/12 at 12:52 PM

Group Number: 1316839

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

## Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ**</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 121720024A Kempore in Water	Sample number(s): 6693008 N.D.	1,000.	230	ug/l	88	95	70-130	8	30
Batch number: 121740029A Opex in Water	Sample number(s): 6693008 N.D.	100.	100	ug/l	96	95	70-130	1	30

\*- Outside of specification

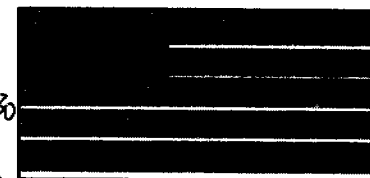
\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Temp 3.1°

Relinquished: \_\_\_\_\_ Date: ~~1~~ / ~~1~~ / \_\_\_\_\_ Time: \_\_\_\_\_ Received: Bruce Date: 6/19/12 Time: 930



# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>RL</b>	Reporting Limit	<b>BMQL</b>	Below Minimum Quantitation Level
<b>N.D.</b>	none detected	<b>MPN</b>	Most Probable Number
<b>TNTC</b>	Too Numerous To Count	<b>CP Units</b>	cobalt-chloroplatinate units
<b>IU</b>	International Units	<b>NTU</b>	nephelometric turbidity units
<b>umhos/cm</b>	micromhos/cm	<b>ng</b>	nanogram(s)
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>meq</b>	milliequivalents	<b>lb.</b>	pound(s)
<b>g</b>	gram(s)	<b>kg</b>	kilogram(s)
<b>µg</b>	microgram(s)	<b>mg</b>	milligram(s)
<b>mL</b>	milliliter(s)	<b>L</b>	liter(s)
<b>m3</b>	cubic meter(s)	<b>µL</b>	microliter(s)
		<b>pg/L</b>	picogram/liter
<b>&lt;</b>	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## Data Qualifiers:

**C** – result confirmed by reanalysis.

**J** - estimated value – The result is  $\geq$  the Method Detection Limit (MDL) and  $<$  the Limit of Quantitation (LOQ).

## U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
<b>A</b>	TIC is a possible aldol-condensation product	<b>B</b>	Value is $<$ CRDL, but $\geq$ IDL
<b>B</b>	Analyte was also detected in the blank	<b>E</b>	Estimated due to interference
<b>C</b>	Pesticide result confirmed by GC/MS	<b>M</b>	Duplicate injection precision not met
<b>D</b>	Compound quantitated on a diluted sample	<b>N</b>	Spike sample not within control limits
<b>E</b>	Concentration exceeds the calibration range of the instrument	<b>S</b>	Method of standard additions (MSA) used for calculation
<b>N</b>	Presumptive evidence of a compound (TICs only)	<b>U</b>	Compound was not detected
<b>P</b>	Concentration difference between primary and confirmation columns $>25\%$	<b>W</b>	Post digestion spike out of control limits
<b>U</b>	Compound was not detected	<b>*</b>	Duplicate analysis not within control limits
<b>X,Y,Z</b>	Defined in case narrative	<b>+</b>	Correlation coefficient for MSA $<0.995$

**Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.